

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,952,108 B2
APPLICATION NO. : 10/663587
DATED : October 4, 2005
INVENTOR(S) : Guy T. Blalock

Page 1 of 3

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the drawings:

In FIG. 1, insert reference numeral --2-- on each side of the line going through the center of Fig. 1 (as shown below)

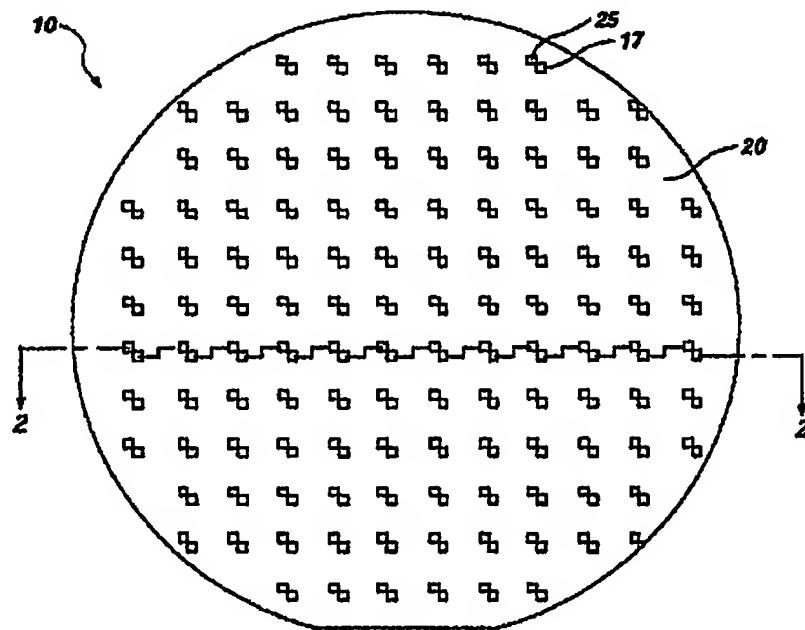


Fig. 1

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It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the drawings:

In FIG. 4, change reference numeral "22c" to reference numeral --22c"-- (as shown below)

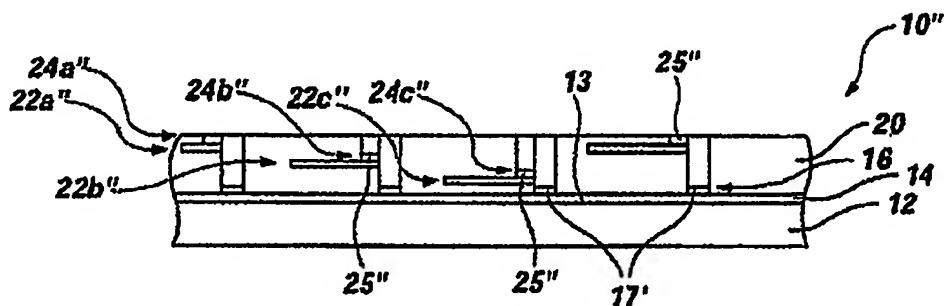


Fig. 4

Signed and Sealed this

Eighth Day of January, 2008

JON W. DUDAS
Director of the United States Patent and Trademark Office

(12) United States Patent
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(45) Date of Patent: Oct. 4, 2005

(54) METHODS FOR FABRICATING PLASMA PROBES

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 97 days.

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(58) Field of Search 324/754-756,
324/758, 760-762, 158.1; 438/17-18; 216/18-19,
84, 100

(56) References Cited

U.S. PATENT DOCUMENTS

5,065,201 A	11/1991	Yamauchi
5,315,145 A	5/1994	Lukaszek
5,594,328 A	1/1997	Lukaszek
6,051,443 A	4/2000	Ghio et al.
6,140,833 A	10/2000	Fleitner et al.
6,144,037 A	11/2000	Ryan et al.

OTHER PUBLICATIONS

Boedo, J., "UCSD-FERP Boundary Diagnostics for NSTX," NSTX PAC Meeting, May 1997, 6 pages.

"Fast Reciprocating Probes for Edge Profile Characterization on NSTX," Jan. 1998, 1 page.

Lukaszek et al., CHARM: A New Wafer Surface Charge Monitor, TechCon '90, San Jose, 4 pages (no month/year).

Moyer, Rick, "Langmuir Probes and Boundary Plasma Measurements," Dill-D News, <http://fusion.gat.com/DNT/DNT21.htm>, Aug. 1994, 3 pages.

Moyer, Rick, "UC San Diego Boundary Diagnostics for NSTX," NSTX FY98 Research Forum, Dec. 1997, pp. 1-11.

Moyer, Rick, "UC San Diego Boundary Diagnostics for NSTX," NSTX FY98 Research Forum, Dec. 1997, pp. 1-12.

Moyer, Rick, "UC San Diego Fluctuation and Turbulent Transport Diagnostics for NSTX," NSTX FY98 Research Forum, Dec. 1997, pp. 1-8.

Rudakov, D.L. et al., "Probe Diagnostics," <http://www.iss-physics.msu.edu/psl/probht.html>, date unknown, 4 pages.

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(57) ABSTRACT

A plasma probe that includes a substrate having substantially the same properties as those of a substrate to be processed, a bottom electrode layer located over the substrate and electrically isolated therefrom, a dielectric layer positioned over the bottom electrode layer including apertures through which one or more electrodes of the bottom electrode layer are exposed, and at least one upper electrode layer that is electrically isolated from the bottom electrode layer by way of the dielectric layer. Electrodes of the bottom and upper electrode layers communicate with meters which may provide real-time data representative of one or more properties of a region of a plasma to which the electrodes are exposed. The plasma probe may be fabricated by forming the bottom electrode layer over the substrate and separately forming one or more upper electrode layers over a sacrificial substrate. These structures are assembled with the dielectric layer therebetween.

22 Claims, 6 Drawing Sheets

